

Advanced X-ray - Gratings Observatory

Mission Block Diagram Showing Space, Launch, and Ground Segment Elements and Interfaces

Revision
Date:
22 Mar 2012

Interface Color-
Coding
By Type

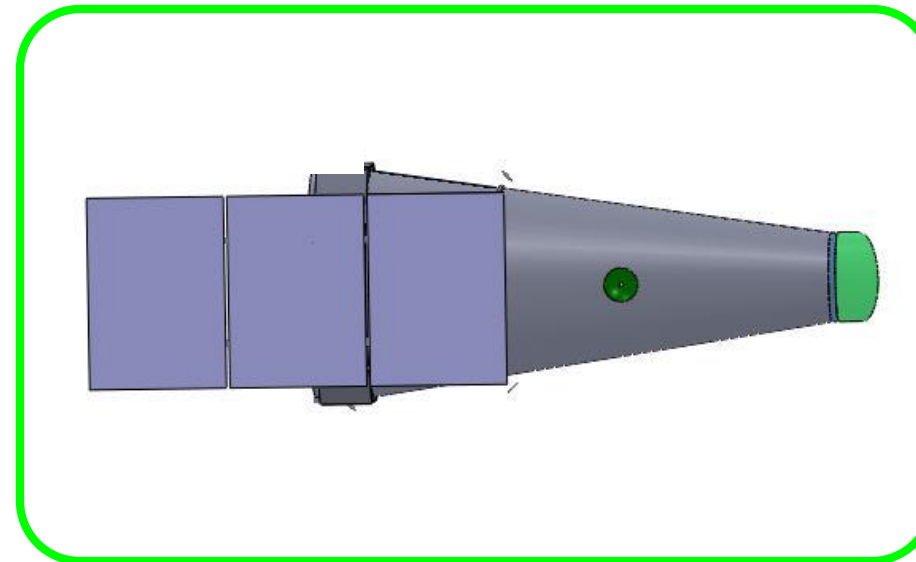
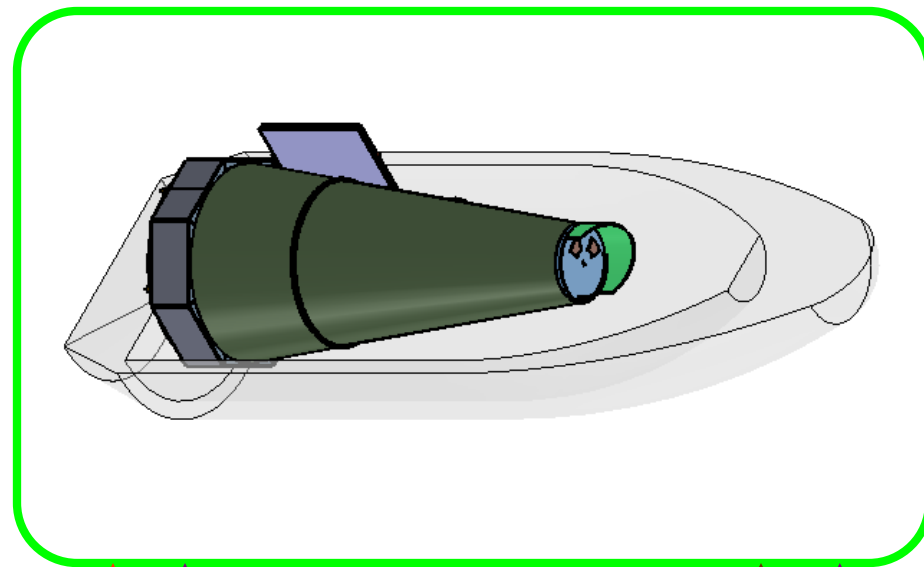
Power Lines

Mechanical

RF Interfaces

C3I Hard-Lines

(Data, Control, Monitor, Timing)



Environmental Interfaces

Solar Rays/Pressure
Earth Reflected Light
Thermal Radiation
Star Light
Particle Radiation
Gravity
Propellant Thrust
Micro-Meteorites

Power

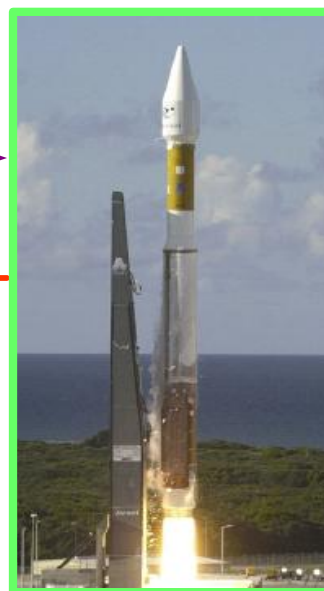
Hard-Line

Physical

Hard-Line

**Atlas V
(401)**

Launch
Tower
(Kennedy)



Launch
Vehicle

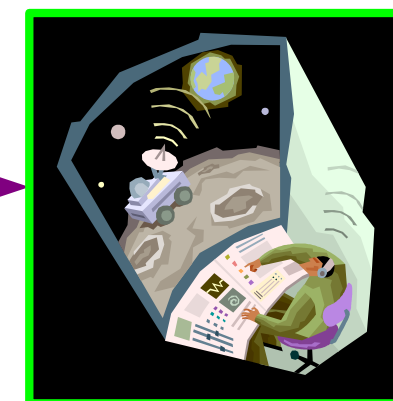
RF
Uplink
Downlink
Ranging
(S-Band)

RF
Downlink
(Ka-Band)

DSN
Deep Space
Network



MOC
Mission Ops Center
(GSFC)



Fiber-Optic
Lines

Fiber-Optic
Lines

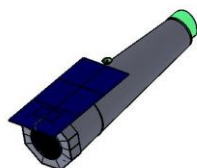
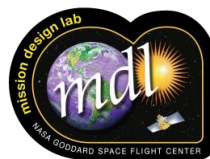
Fiber-Optic
Lines

SOC
(GSFC)



SDPC
Science Data
Processing
Center
(GSFC)





Advanced X-ray - Gratings
Observatory

Observatory Electrical Block
Diagram

Revision
Date:
19 Mar 2012

Interface Color-
Coding
By Type

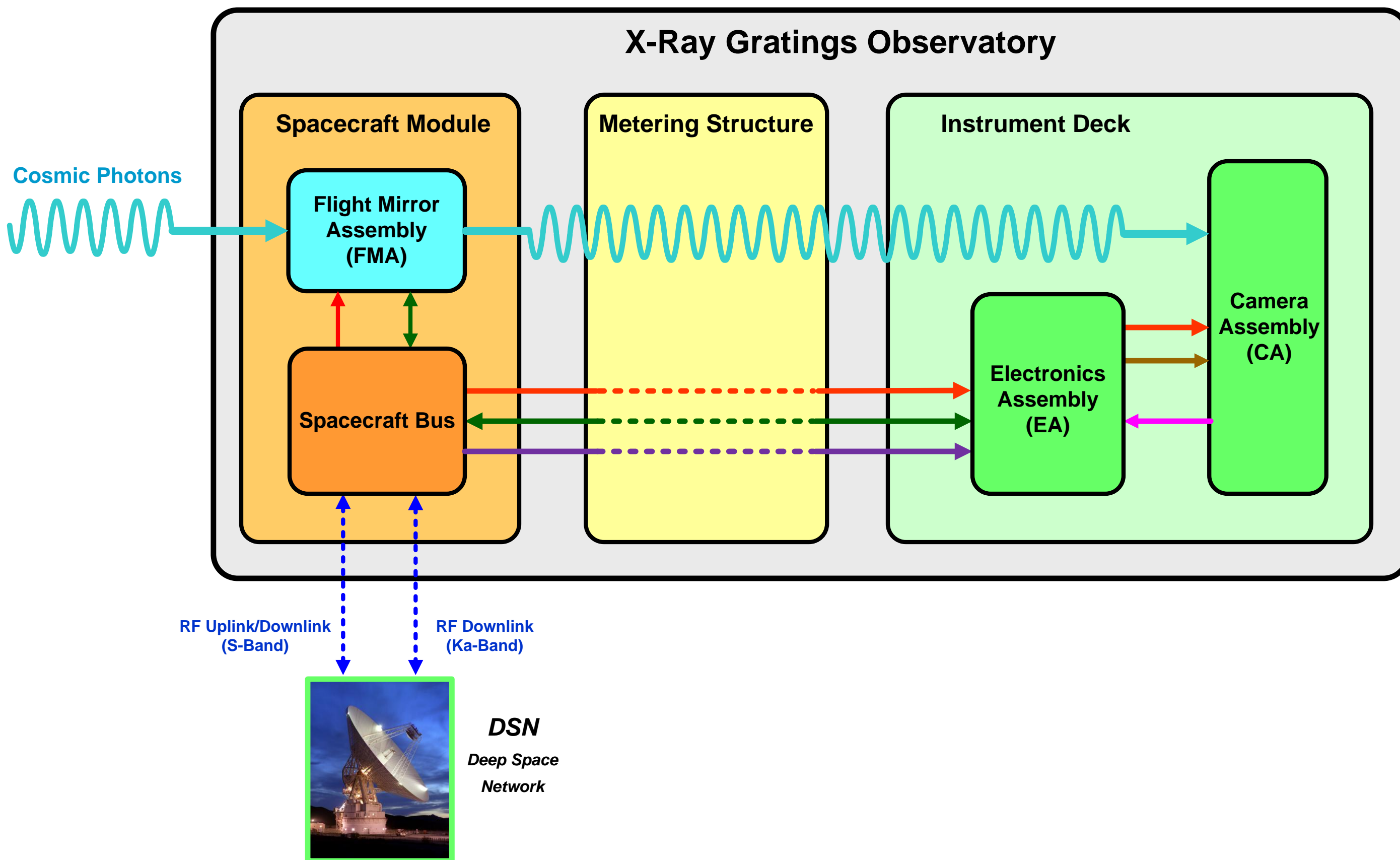
Power Lines

Mechanical

RF Interfaces

C3I Hard-Lines

(Data, Control, Monitor, Timing)



Functional Interface
Color-Coding Key
(By Type)

Electrical
Power Lines

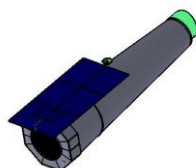
Digital Data
Lines

Analog Signal
Lines

Timing Signal
Lines

Actuation Current
Lines

RF Telecom
Channels



Advanced X-ray - Gratings
Observatory

Instrument Deck Electrical
Block Diagram

Revision
Date:
22 Mar 2012

Interface Color-
Coding
By Type

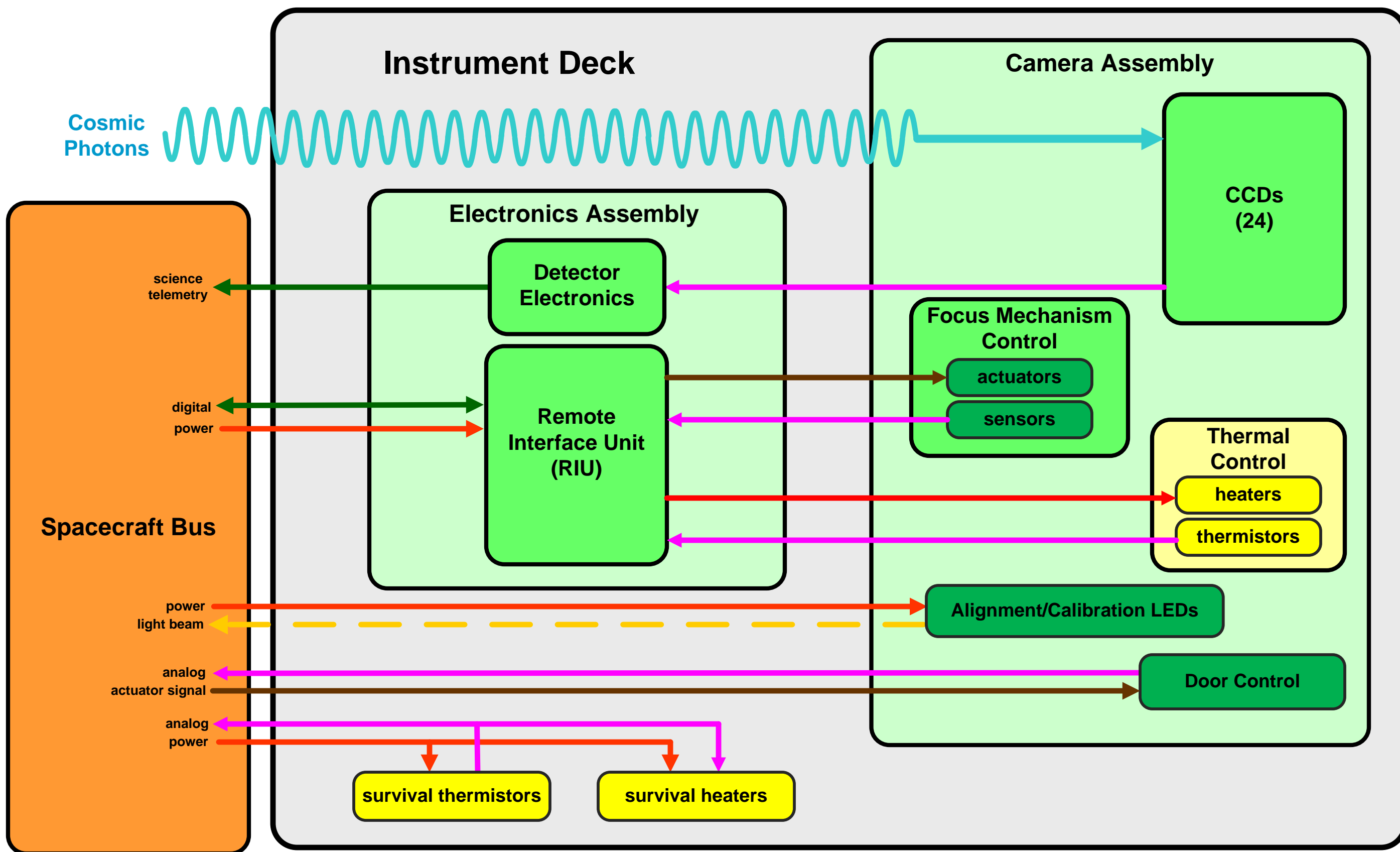
Power Lines

Mechanical

RF Interfaces

C3I Hard-Lines

(Data, Control, Monitor, Timing)



System
Configuration Item
Color-Coding Key
(By Type)

RF Telecom

Electrical

Power

Thermal

Mechanical

GN&C / ACS

Propulsion

S/C Bus

Instrument P/L

Functional Interface
Color-Coding Key
(By Type)

Mechanical
Connections

Thermal
Energy Paths

Electrical
Power Lines

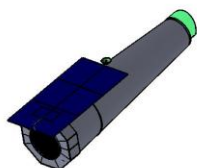
Actuation Current
Lines

Analog Signal
Lines

Digital Data
Lines

Timing Signal
Lines

RF Telecom
Channels



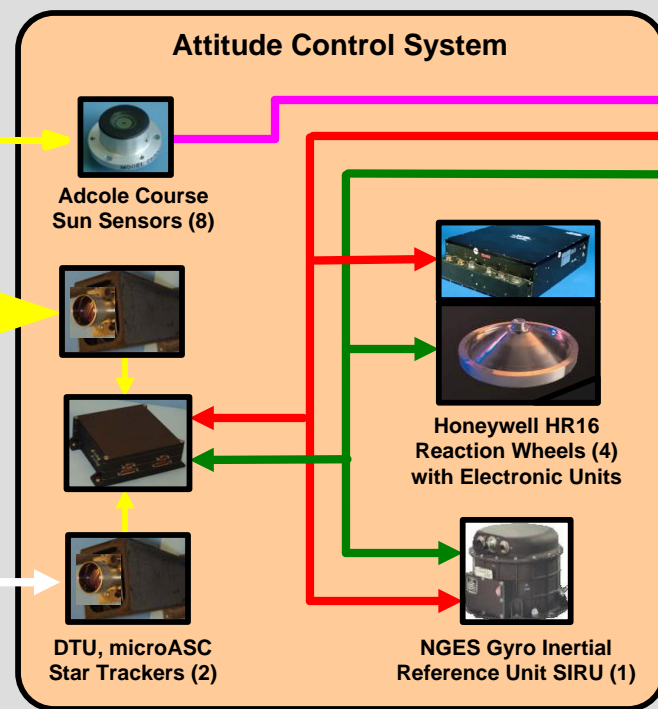
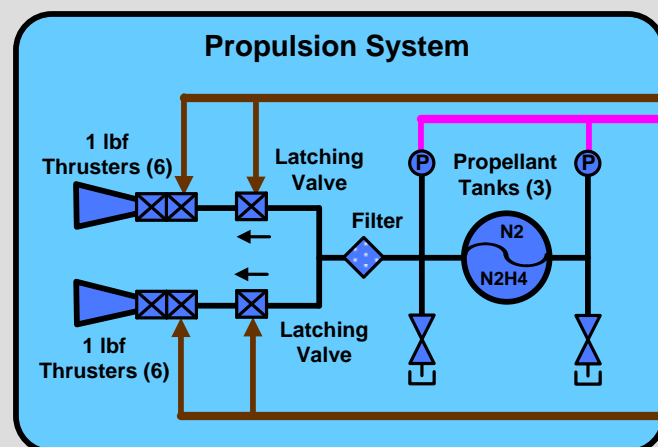
Advanced X-ray - Gratings Observatory

Spacecraft Bus Module Schematic Diagram Showing Spacecraft Bus Sub- Modules, Subsystems, and Units

Revision
Date:
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To Instrument Deck

Switched + 28 V Power Lines
Serial Data Lines
Deployment Actuation Lines
Deployment Position Sensor Analog Lines
Survival Heater Power Lines (+28 V)
Survival Thermistor Analog Lines

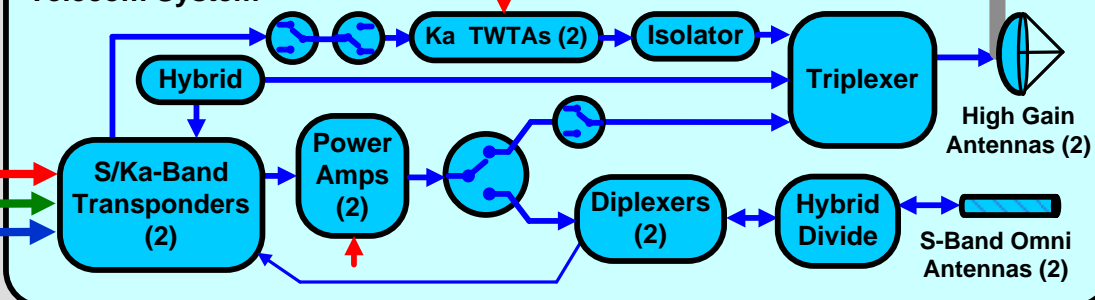


Instrument Digital
Processing Unit

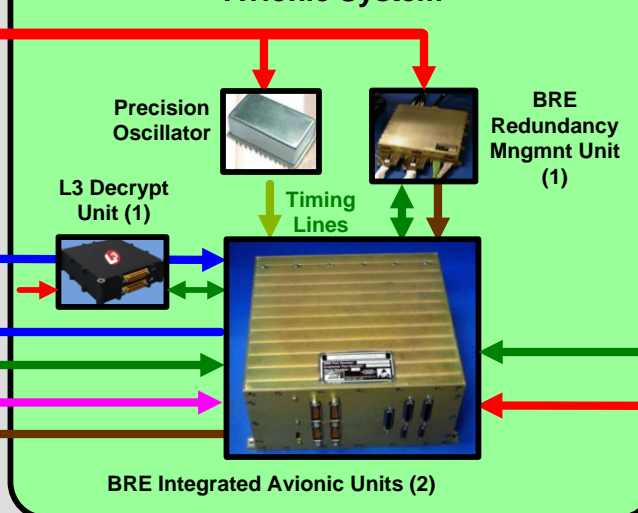
Mechanism System

HGA Gimbals

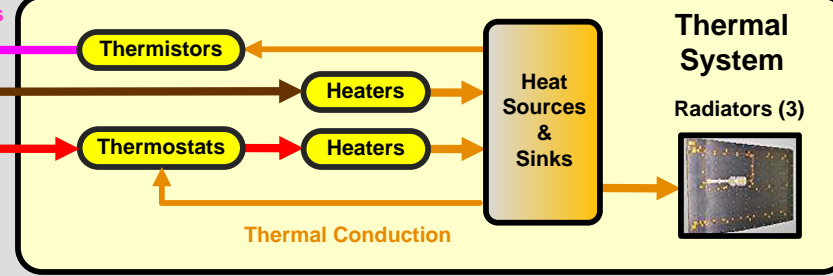
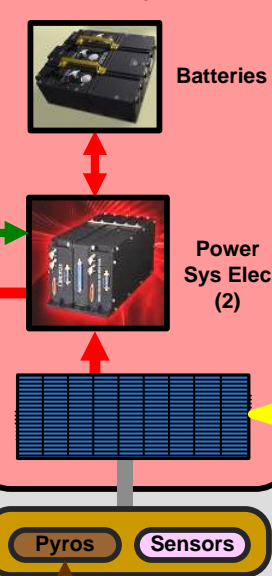
Telecom System



Avionic System



Power System



High Gain Antenna
Uplink/Downlink

Omni Antenna
Uplink/Downlink

Solar
Arrays
(2)

Radiated Heat

System
Configuration Item
Color-Coding Key
(By Type)

- RF Telecom
- Electrical
- Power
- Thermal
- Mechanical
- GN&C / ACS
- Propulsion
- S/C Bus
- Instrument P/L

Functional Interface
Color-Coding Key
(By Type)

- Mechanical Connections
- Thermal Energy Paths
- Electrical Power Lines
- Actuation Current Lines
- Analog Signal Lines
- Digital Data Lines
- Timing Signal Lines
- RF Telecom Channels